

Iowa's Glacial History

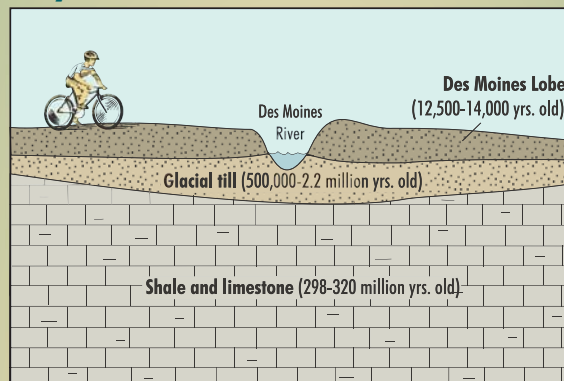


Although during much of its geologic history Iowa was part of an interior sea, today what we see on the land surface has been heavily influenced by recent **glaciation**. Everything from Iowa soils, rivers, lakes, and hills has been influenced by glaciation.

Most of Iowa's bedrock is hidden beneath a thick mantle of deposits from the Cenozoic (i.e., new life) Era, spanning the last 65 million years. Geologists have divided the **Cenozoic Era** into two periods. These are the Tertiary (1.8-65 million years ago) and Quaternary Periods (recent to 1.8 million years ago). Most geologic records in Iowa are from the Quaternary period, and include glacial till and loess.

Past glacial events in Iowa can be divided into three distinct periods. The oldest, the **Pre-Illinoian Glacial Episode**, was actually over seven separate glacial advances that occurred from 500,000 to 2.2 million years ago. These multiple glacial advances covered the state with glacial debris. After about two hundred thousand years of erosion, the **Illinoian Glacier** advanced westward into southeastern Iowa from 130,000 to 300,000 years ago. The most recent glacial advances into Iowa occurred 12,000 to 15,000 years ago and were part of the **Wisconsinan Episode**. The land formed after the last glacier retreated is called the Des Moines Lobe Region, after the city that marks its southernmost extent.

Day 3 Milestones



Start: Jefferson

Hardin Creek: 2.5 miles

Buttrick Creek: 4.2 miles

Pound Pits: 11.4 miles

Altamont Moraine: 12.2 – 27 miles

Ogden: 29 miles

Des Moines River: 24 miles

Finish: Ames – 57 miles

For more information...

The IDNR-Iowa Geological and Water Survey has a wealth of information on Iowa's geology, environmental, and water resources. This information exists as maps, publications, books, etc. Most of these publications are available online at www.igsb.uiowa.edu/gsbpubs. You can search our free catalog by keywords, location, and category.

A more detailed version of the Landform Regions of Iowa map seen on the inside flap of this brochure is available online at: www.igsb.uiowa.edu/gsbpubs/pdf/EM-25.pdf.

Questions??? Comments...

Contact Chad Fields, Research Geologist for the Iowa DNR: Chad.Fields@dnr.iowa.gov

R A G B R A I 2008

Learn about the Land

Day 3

Tuesday, July 22



Iowa DNR – Geological and Water Survey

109 Trowbridge Hall
Iowa City, IA 52242-1319
(319)-335-1575
www.igsb.uiowa.edu

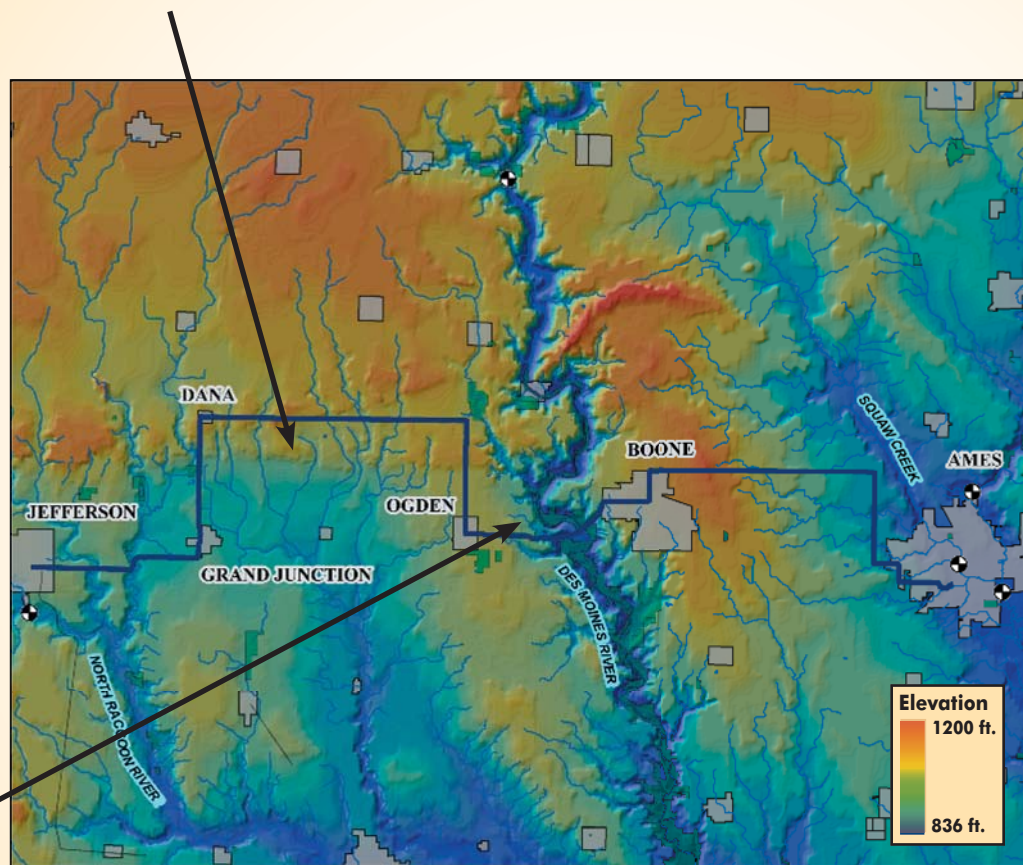
US Geological Survey

Iowa Water Science Center
400 S. Clinton St.
Iowa City, IA 52240
(319) 337-4191
<http://ia.water.usgs.gov>

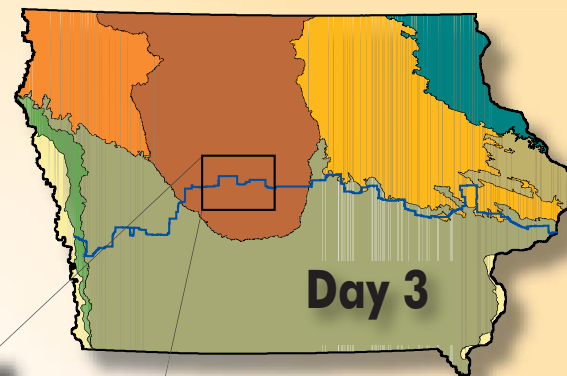
Today's relatively flat ride across the Des Moines Lobe should be seem easy after the hilly Day 2! However, before you breath a sigh of relief be prepared for some elevation gain. Approximately two miles south of Dana you will start your ascent of the **Altamont Moraine**. As you approach the moraine notice that it is relatively flat out in front and that you are biking by a gravel pit on your left along Buttrick Creek. This area is an outwash plain associated with the second advance of the Des Moines Lobe. A number of radiocarbon dates from wood removed from the glacial till bracket the age of the Altamont Moraine around 13,500 years. When you can spot the Dana radio tower it is a good indicator that you are on a Des Moines Lobe moraine.

The **Boone Scenic Railroad** was first developed in 1893 to transport coal from Fraser to Fraser Junction, now called Wolf. For nearly 100 years the train shipped commercial goods. In the early 80's the newly formed "Boone Railroad Historical Society" bought 11.3 miles of track and opened the leisure train ride to the public. To this day the railroad is being used for recreation, supplying visitors with dessert and picnic train rides along with special event rides.

Between Ogden and Boone you will travel over the **Des Moines River Valley**. The valley has a youthful geologic history related to the drainage of the last surge of the Des Moines Lobe, the **Algona Advance**. It is believed that the picturesque valley was created when the ice sheet spectacularly dewatered between 12,600 to 11,000 years ago. Near Boone there is at least 220 feet of deepened valley. Some of you may be familiar with this area which is the location of the Kate Shelley Bridge. It is the longest (3/4 mile) and tallest (186 feet) double track bridge in the United States and named after the heroin who saved the train and passengers from plummeting into the flood swollen waters in the late 1800s.



USGS streamflow station
Parks and Preserves



Following Iowa's last glaciation, a great flat expanse was left through what is now North Central Iowa. This area developed into a vast **tallgrass prairie** (see cover photo) covered with marshes ranging in size from small depressions to vast sloughs miles long. This landform, often known as the "Prairie Pothole Region" extended north into Minnesota, the Dakotas, Montana and Canada. Historically **prairie pothole areas** were important breeding grounds for waterfowl and sustained great herds of bison, elk and other game large and small. Although this region was a considerable obstacle for traveling pioneers, when drained these wetlands produced rich, fertile soils. As a consequence, greater than 95% of the marshes in this region were drained in the course of 100 years. Few wetlands remain in Iowa, but those that do are still used extensively by waterfowl during spring and fall migrations and for nesting. These areas provide recreational opportunities for Iowans and a lasting reminder of Iowa's recent landscape changes.